IN THE SPECIFICATION:

Please replace paragraph number **[0001]** with the following rewritten paragraph:

[0001] This application is a continuation of application Serial No. 09/875,632, filed June 6, 2001, ~~pending~~ now U.S. Patent 6,607,019, issued August 19, 2003, which is a continuation of application Serial No. 09/330,794, filed June 14, 1999, now U.S. Patent 6,267,167, issued July 31, 2001, which is a divisional of application Serial No. 08/908,291, filed August 7, 1997, now U.S. Patent No. 6,096,165, issued August 1, 2000.

Please replace paragraph number **[0006]** with the following rewritten paragraph:

[0006] ~~Alternately~~Alternatively, a lead-over chip, also sometimes referred to as a lead-on-chip (LOC) leadframe, is used to provide lead fingers to be electrically connected to the bond pads of the semiconductor device through wire bonds thereto and to support the semiconductor device by being adhesively secured to the active surface thereof and, subsequently, encapsulated. A LOC type semiconductor package is described in U.S. Patent 4,862,245 (Pashby et al.).

Please replace paragraph number **[0016]** with the following rewritten paragraph:

[0016] The second source preferably includes a second adhesively coated tape supply configured to supply the second length and second driving means positioned to receive the second length. Second driving means also operates to urge the second length toward the second cutting structure. The second driving means is connected to the control means to receive operation signals to urge the second length toward the second cutting structure only when a second portion of the die site of a leadframe of ~~said~~ the plurality of leadframes is positioned or is to be positioned relative to the second die to receive the second increment.

Please replace paragraph number **[0022]** with the following rewritten paragraph:

[0022] The application means also may include guide structure for guiding the first length of adhesively coated tape material and guide structure for guiding the second length of adhesively coated tape material. The first cutting structure and the second cutting structure may be unitarily formed into a single structure. The operation means may be desirably configured to urge the first die and the second die together. ~~Alternately~~Alternatively, the operation means may be configured to urge the first die and the second die to move independent of each other.

Please replace paragraph number **[0023]** with the following rewritten paragraph:

[0023] In a desired ~~alternate~~ alternative arrangement, the plurality of leadframes includes a first leadframe, a middle leadframe and a last leadframe. The indexing means is operable to urge the first leadframe to a first position with its first site positioned relative to the first die to receive the first increment upon activation of the first source with the second site positioned spaced to not be contacted by the second die. Control means is configured to send operation signals to activate the first source to supply the first length of adhesively coated tape material to the first cutting means and to send operation signals to not activate the second source.

Please replace paragraph number **[0026]** with the following rewritten paragraph:

[0026] In an ~~alternate~~ alternative arrangement, a system to apply adhesively coated tape to a LOC leadframe of a plurality of LOC leadframes includes a base and a block positioned opposite the base and spaced therefrom for a LOC leadframe to pass closely and freely therebetween. Supply means is positioned relative to the base to supply the first adhesively coated tape length and the second adhesively coated tape length. Indexing means are provided to move each LOC leadframe of the plurality of leadframes relative to the base. Application means is mechanically associated with the base for cutting the first tape length into a first tape decal and applying the first tape decal to a first position at a die site of the LOC leadframe. The application means also cuts the second tape length into a second tape decal and applies the second decal to a second position of the die site of the LOC leadframe. Control means are interconnected to the

supply means, to the application means and to the indexing means to supply control signals so that decals are applied to the first position of a die site on a LOC leadframe and so that decals are applied to the second position of a die site on a LOC leadframe.

Please replace paragraph number **[0030]** with the following rewritten paragraph:

[0030] FIG. 2 is a side view of an ~~alternate~~ alternative configuration of the system of the present invention;

Please replace paragraph number **[0037]** with the following rewritten paragraph:

[0037] FIGS. 13 and 14 are illustrations of ~~alternate~~ alternative configurations of a drive structure of the present invention;

Please replace paragraph number **[0038]** with the following rewritten paragraph:

[0038] FIGS. 15 and 17 depict portions of an ~~alternate~~ alternative configuration of a drive structure of the present invention in perspective;

Please replace paragraph number **[0039]** with the following rewritten paragraph:

[0039] FIG. 16 is a simplified illustration of an ~~alternate~~ alternative configuration of the present invention; and

Please replace paragraph number **[0046]** with the following rewritten paragraph:

[0046] As also seen in drawing FIG. 1, the second source 16 includes a second adhesive supply of adhesively coated tape material 54 associated with a reel 56 on axle 40. The second adhesive supply 54 includes a circular roll of adhesively coated tape material 55 that passes through, over or about a second guide 58 which is also rotatably or fixedly mounted about the axle 44. The second length 18 proceeds from the second adhesive supply 54 to the second drive structure 60.

Please replace paragraph number **[0048]** with the following rewritten paragraph:

[0048] Also depicted in drawing FIG. 1, the indexing structure 20 includes a movable arm 70′ (shown in dashed lines) which engages an indexing hole 82 in the rail or edge 80 to move the strip of leadframes a desired amount or distance. The movable arm 70′ may be actuated in any convenient manner using any suitable power source and central arrangement. ~~Alternately~~Alternatively, the indexing structure 20 includes an indexing roller 70 interconnected by a shaft 72 to a drive motor 74. The drive motor 74 is interconnected by conductor 76 to receive operation signals from the controller 32. The operation signals cause the motor 74 to rotate which, in turn, causes the indexing roller 70 to rotate. The plurality of leadframes for semiconductor devices is positioned to be driven by the indexing roller 70 to, in turn, cause the plurality of leadframes 22-26 to move relative to the application structure 30. It may be particularly noted that the plurality of leadframes 22-26 of semiconductor frames is formed to have a removable carrier rail or edge or rail 78 and 80 on each side. Each removable edge or rail 78 and 80 has a plurality of perforations positioned to interact with a plurality of teeth 84 and 86 in or on the indexing roller. That is, the teeth 84 and 86 are positioned to drivingly engage the indexing holes 82 to facilitate movement of the plurality of leadframes 22-26 relative to the application structure 30. Upon completion of certain steps in the manufacturing process, the removable carrier rails or edges 78 and 80 may be removed from the leadframes 22-26. Further, the leadframes are here shown to be joined to each other in a continuous strip form. In the manufacturing process subsequent to that herein illustrated and discussed, adjacent leadframes such as leadframes 22 and 23, for example, are also separated one from the other for further processing.

Please replace paragraph number **[0049]** with the following rewritten paragraph:

[0049] The application means may include a block 88 positioned above the application structure 30. As hereinbefore noted, each leadframe, such as leadframe 23, has a first portion 90 of a die site 90 to receive a first increment of the first length 14. The first increment may also be referred to as a decal. The first increment or decal is urged upward by a die through a first die

aperture 92 in the application structure 30. Similarly, a second increment or decal is urged upwardly by a second die through a second die aperture 94 to position the second decal or increment at a second site such as second portion ~~96~~ of a die site 96. As the leadframes 22-26 move 98 by operation of the indexing structure 20, the first portion ~~90~~ of a die site 90 is positioned relative to the first die aperture 92. Activation of the application structure 30 by the controller 32 causes the application structure to apply the first increment or first decal through the first die aperture 92 to a leadframe and, more particularly, to the first portion ~~90~~ of a die site 90 of a leadframe such as leadframe 23 of the plurality of leadframes. Similarly, on positioning of the second portion ~~96~~ of a die site 96 relative to the second die aperture 94, the controller 32 causes the application structure 30 to operate and, in turn, apply the second increment or second decal through the second die aperture 94 to the second portion ~~96~~ of a die site 96 of a leadframe such as leadframe 23 of the plurality of leadframes 22-26.

Please replace paragraph number **[0050]** with the following rewritten paragraph:

[0050] In operation, the first leadframe, such as leadframe 23, is indexed to position the first portion ~~90~~ of a die site 90 relative to the first die aperture 92. In turn, the controller 32 activates the stepping motor 50 via conductor 52 to, in turn, operate the drive roller 46 of the first drive structure 36. In turn, the first length 14 is urged toward the application structure 30 so that the first increment or first decal can thereby be formed by the application structure as more fully discussed hereinafter. With the first portion ~~90~~ of a die site 90 of the leadframe 23 positioned relative to the first die aperture, and with no second portion of a die site, such as of leadframe 24, positioned relative to the second die aperture 94, the controller 32 does not activate the second stepping motor 64. In turn, the second length 18 is not urged toward the application structure 30. In turn, the second increment or decal is not formed and is not urged upward through the second die aperture 94. A savings in adhesively coated tape material is thereby realized. Further, adhesively coated tape material 55 is not applied upward against the block 88 and does not build up over time to interfere with the quality and operation of the system 10. That is, the adhesively

coated tape material can build up and interfere with the smooth operation of the system and to potentially interfere with the quality of a particular leadframe of the plurality of leadframes.

Please replace paragraph number **[0051]** with the following rewritten paragraph:

[0051] The controller 32 here illustrated may be any combination of electronic and electromechanical devices having an input ~~structure,~~ structure to receive input data pertaining to the desired speed as well as the length of the increments and the size (e.g., length) of the leadframes. Preferably, a computing structure is positioned therewith to generate signals to, in turn, cause electromechanical devices to supply electrical energy via a plurality of relays and conductors. The electrical energy is received from the conventional sources of electrical energy via a conductor 100. A plurality of relays or the equivalent thereof in the controller 32 is activated to supply electrical energy via conductors 68 and 52 to their respective stepping motors 64 and 50, as well as to activate the application structure 30, all to form and apply the first increment and the second increment from the first length 14 and the second length 18 of the adhesively coated tape materials 35 and 55. Similarly, relays or their equivalent are activated to supply signals via conductor 76 to, in turn, cause the motor 74 to index and to drive the plurality of leadframes 22-26 relative to the application structure 30.

Please replace paragraph number **[0053]** with the following rewritten paragraph:

[0053] Referring now to drawing FIG. 2, a system 104 similar to system 10 includes a source of adhesively coated tape material 106 along with application structure 108. The source of adhesively coated tape material 106 includes a first roll of adhesively coated tape material, not illustrated, as well as a second roll 110 of adhesively coated tape material positioned to be rotatably dispensed from reel 112. The reel 112 rotates freely about an axle 114 to form a second length 116. The second length 116 and a first length (not shown) pass about first guide structure 118 that includes rollers similar to the first guide 42 and second guide 58 shown in FIG. 1. The second length 116 and the first length (not shown) pass into the driving structure 120 that includes a first drive roller 122 and a second drive roller 124. A first driven

roller (not shown) and the first drive roller 122 ~~(not shown)~~ have the first length (not shown) passing therebetween. A second drive roller 124 and a first drive roller 122 are shown with the second length 116 passing therebetween. A dotted line 126 represents an axle connection between the ~~second~~ first drive roller 122 and a second stepping motor 128. The second stepping motor 128 is connected by conductor 130 to a controller (not here shown) similar to controller 32. The first length from the first source (not shown) is similarly driven by a first stepping motor (not shown).

Please replace paragraph number **[0065]** with the following rewritten paragraph:

[0065] It should also be noted that the width 208 of the left tape guide 200 and the width 228 of the right tape guide 203 may be substantially identical. Alternatively, the width 208 and the width 228 may vary in order to accommodate tape material of different widths which may be selected as desired by the user.

Please replace paragraph number **[0071]** with the following rewritten paragraph:

[0071] Four guide posts 294-297 are also shown in drawing FIG. 3. They are sized in cross section to snugly fit within the corresponding apertures 298-301 formed in the base 160. Screws, or any other suitable structure, may be provided to snugly secure the guide posts 294-297 within the corresponding apertures 298-301. Four bushings 302-305, shown in drawing FIG. 4, are sized with interior apertures 306-309 to snugly and slidably fit over the guide posts 294-297. The bushings 302-305 also slidably fit through corresponding apertures 310-313 formed in a punch shoe 314. A left die 316 is also shown in drawing FIG. 4. The left die 316 has a width 320 and a length 322 selected to snugly fit within the punch shoe left die aperture 324 and to correspondingly register with and slide snugly through the first die aperture 214 in the punch guide insert 176 shown in drawing FIG. 3. Further, the left die 316 will pass through the notch 280 as it proceeds upwardly toward a semiconductor device leadframe which is passing over the top surface of the application structure, which top surface is comprised of the top surface 241 of the tape lead-in guide 240 and the corresponding top surface 259 of cutter

block 258 and the top surface 277 of the guide insert 276. That is, the left die 316 is sized in height 326 to extend upwardly a distance so that the top surface 328 contacts the leadframe of a plurality of leadframes of semiconductor devices passing over the top surfaces 241, 259 and 277 in order to adhere a first increment of the first length 212 to a portion of a die site of a leadframe of the plurality of leadframes, such first site being selected by positioning a leadframe of each of the plurality of leadframes in a desired location and by selecting the width 190 of the punch guide insert 176 and, more particularly, the distance between the left tape guide 200 and the right tape guide 202.

Please replace paragraph number **[0075]** with the following rewritten paragraph:

[0075] It may be noted that the distance the left die 316 and the right die 318 travel past the surface, defined by the surfaces 241, 259 and 277 (FIG. 3), is controlled by the height 352 or length of each of the bushings 302-305. It may also be noted that the left die 316 and the right die 318 each have a respective shoulder 354 and 356 to preclude driving the ~~dies~~ dice 316 and 318 through the corresponding punch shoe left die aperture 324 and the punch shoe right die aperture 348.

Please replace paragraph number **[0076]** with the following rewritten paragraph:

[0076] It should be understood that in operation a driving mechanism, such as a solenoid 152 shown in drawing FIG. 2, operates to urge the punch plate 332 upward to, in turn, drive the left die 316 and right die 318 upward through the punch shoe 314 and through the first die aperture 214 and the second die aperture 238. Mechanisms, other than a solenoid, may be used to urge the punch plate upward. For example, a mechanical cam structure may be provided, as well as a hydraulic piston or any other similar device which provides vertical or upward force sufficient to drive the left die 316 and the right die 318. It may be noted that the total travel of the left die 316 and the right die 318 is such that, at a low point, the tops are slightly below the level of the flat surfaces 204 and 206 and at the high point the tops are slightly above what is essentially a flat surface defined by the surfaces 241, 259 and 277 (FIG. 3). Thus, the travel was

slightly more than the height 257 of the left recess portion ~~260~~ 261 which is sized to receive the cutter block 258 and the guide insert 276 (FIG. 3).

Please replace paragraph number **[0078]** with the following rewritten paragraph:

[0078] Similarly, a first die 374 is shown positioned in a first die channel 376 for snug but slidable movement therein. A first length of adhesively coated tape material from a first supply of adhesively coated tape material extends toward the first die channel 376. The first die moves upward past the cutter block 370 to thereby form a first increment or first decal 378. The first die 374 positions and forcibly urges the first decal 378 to the underside 380 of a leadframe 382 of a plurality of leadframes which are passing over the upper surface 384 of the application structure 362.

Please replace paragraph number **[0080]** with the following rewritten paragraph:

[0080] ~~Dies~~Dice 374 and 368, illustrated in drawing FIG. 5, are shown in an upward position respectively, being the first increment or decal 378 as well as a corresponding second decal or second increment 388. That is, the second die 368 moves upward, urging the adhesively coated tape material of the first increment 378 past the cutter block 370 to, in turn, form the second decal or increment 388 and to further urge the second decal or increment 388 upward against the underside 380 of the leadframe 382 at a site selected by the dimensioning of the apparatus and by the movement of the leadframe 382 relative to the application structure 362. Similarly, the first die moves upward to form and position the first decal or increment 378.

Please replace paragraph number **[0083]** with the following rewritten paragraph:

[0083] Referring now to the second application structure 416, it can be seen that the second plurality of leadframes 404 is positioned with a first leadframe 405 having its first position of a die site positioned over the top of the first die or relative to the first die to receive the increment of the first decal therefrom. With indexing means urging the plurality of leadframes 404 across the face or top surface 448 of the second application structure 416, it can

be seen that the first site 450 moves away from the top of the first die, such as the top 424 of the first die ~~424~~, so that the second site 452 is positioned over the top of or relative to the top 454 of the second die. Thus, as shown with respect to the first application structure, a first leadframe 392 has its second site 456 positioned over the top 458 of a second die while the second or any middle leadframe 393 has its first site 460 positioned over the top 462 of the first die.

Please replace paragraph number **[0085]** with the following rewritten paragraph:

[0085] As hereinafter discussed, the controller 32 sends operation signals to drive structures 36 and 60 (FIG. 1) to advance the first length 14 and the second length 18 over the tops of their respective ~~dies~~ dice so that a first increment or first decal and a second increment or second decal can thereby be formed and attached at their respective first sites and second sites of each of the leadframes of the plurality of leadframes without advancing a second increment when the first leadframe is not yet positioned thereover and not forming and advancing a first increment when the last leadframe is no longer positioned over the top of the first die.

Please replace paragraph number **[0092]** with the following rewritten paragraph:

[0092] The upper roller top housing 546 (FIGS. 7 and 8) has a roller recess 548 formed therein to rotatively receive therewithin the left upper roller 524 and the right upper roller 522. Apertures 550 and 552 are positioned to threadedly receive set screws therethrough to contact the corresponding right end 530 of the common axle 526 and the left end 528 of the common axle 526 to thereby rigidly hold the common axle 526 in place while providing for free rotation of the right upper roller 522 and the left upper roller 524 thereabout. Notably, the upper roller top housing 546 is secured to the upper roller base 514 through the use of screws associated with a plurality of apertures 554-557.

Please replace paragraph number **[0093]** with the following rewritten paragraph:

[0093] Positioned between the upper roller base 514 and the lower roller top housing 502 is a tape guide 558. The tape guide 558 has an aperture 560 positioned to receive the rear alignment pin 484 in order to align the tape guide 558 relative to the lower right roller 488, lower left roller 490, ~~upper~~ right upper roller 522 and ~~upper~~ left upper roller 524. It also has a forward alignment aperture 562 to align with the forward alignment pin 482.

Please replace paragraph number **[0094]** with the following rewritten paragraph:

[0094] The tape guide 558 has a roller recess 564 sized to receive the ~~left~~ lower left roller 490 and ~~right~~ lower right roller 488 therein to extend just barely above the top surface 566 of the tape guide 558. The lower left roller 490 and lower right roller 488 will contact the first length of adhesive tape supplied from the source of adhesive tape along a right tape track 570, a left tape track 568 and a second source for a second length of adhesive tape supplied from a second source along a right tape track 570. The left tape track 568 and the right tape track 570 are formed of material to provide for reduced friction so that the first length and the second length of adhesive tape may slide smoothly thereover. The left tape track 568 and the right tape track 570 may be slightly recessed to guide the left length and the right length and inhibit lateral movement thereof.

Please replace paragraph number **[0095]** with the following rewritten paragraph:

[0095] It may be noted that the lower left roller 490 and the lower right roller 488 extend upwardly through the roller recess 508 and the roller recess 564 to drivingly engage respectively the first length of adhesive tape and the second length of adhesive tape. The right upper roller 522 is positioned as a driven or idler roller with the second length passing between the driven ~~upper~~ right upper roller 522 and the driving ~~right~~ lower right roller 488. Similarly, the ~~left~~ lower left roller 490 drives the left upper roller 524 with the first length of adhesive tape passing therebetween.

Please replace paragraph number **[0096]** with the following rewritten paragraph:

[0096] The right axle 492 extends outwardly for inner connection to a stepping motor or other means for rotating the axle 492 incrementally to advance the second length a preselected distance to, in turn, provide the desired length of the second decal or second increment. Similarly, a stepping motor or other means is associated with the left axle 494 to drive the lower left roller 490 to, in turn, advance the first length of adhesively coated tape material a desired distance or length to provide for the correct dimensions or desired dimension of the first increment or decal of adhesively coated tape material for application to each leadframe of a plurality of leadframes.

Please replace paragraph number **[0099]** with the following rewritten paragraph:

[0099] Turning now to drawing FIG. 13, a drive structure similar to that shown in drawing FIGS. 7 through 12 is depicted with a first length 582 and a second length 584 extending over a lower left roller 586 and a lower right roller 588. Notably, the left axle 590 has a pulley 592 associated therewith drivingly interconnected with a stepping motor 594 having a drive pulley 596 associated therewith and with a ~~pulley~~ belt 600 connected thereinbetween.

Please replace paragraph number **[0101]** with the following rewritten paragraph:

[0101] In drawing FIG. 14, a similar configuration is shown in which a first length 612 is driven by a left pulley 614. The left pulley 614 is connected by a left axle 616 and is driven by a stepping motor and pulley configuration 617 similar to that illustrated and described with respect to FIG. 13. As can be seen, the right pulley 618 is positioned to drive a second length 620. The right pulley 618 is mounted to a right axle 622 and is driven by a pulley and stepping motor arrangement 621 similar to that illustrated and described in drawing FIG. 13. As can be seen in drawing FIG. 14, the left pulley 614 and the right pulley 618 are each spaced apart from each other and mounted to a separate left axle 616 and to a separate right axle 622. Other arrangements may be provided in which a first length and a second length are separately indexed or stepped toward the application structure.

Please replace paragraph number **[0103]** with the following rewritten paragraph:

[0103] As generally depicted in drawing FIG. 16, an application structure 652 is positioned relative to a block 654 with a plurality of leadframes for semiconductor devices 656 moving relative to the application structure by indexing means such as a roller 657 driven by a stepping motor (not here illustrated). The application structure 652 includes a left punch plate 648 and a right punch plate 650, both positioned to be urged upwardly by respective solenoids ~~658~~ 659 and 660, both activated by conductors 662 and 664. As can be seen, solenoid ~~658~~ 659 urges the left punch plate 648 upward to, in turn, urge the left die 666 to move upwardly through the base of the application structure 652 to form and advance the first increment or decal upward against the underside of each frame of the plurality of frames of semiconductor devices 656 upon orientation of a first site relative to the left die 666. Similarly, punch plate 650 may be urged by its solenoid 660 to move upward relative to the plurality of frames of semiconductor devices 656 to form a second increment from the second length and to urge the second increment toward and attach it to the underside of a second site of a frame positioned relative to the second die 670.